CLAIMS:

1.   A computer-implemented method facilitating similarity recognition of a digital signal, the method comprising:

     obtaining a digital signal; and

     deriving a recognition value representative of the digital signal such that perceptually distinct digital signals result in recognition values that are approximately independent of one another and perceptually similar digital signals result in proximally similar recognition values.

2.   A method as recited in claim 1 further comprising comparing the recognition value with another recognition value derived from another digital signal.

3.   A method as recited in claim 1, wherein the recognition value is a hash value.

4.   A method as recited in claim 1, wherein the digital signals are digital image signals.

5.   A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 1.

6.   A computer comprising one or more computer-readable media having computer-executable instructions that, when executed by the computer, perform the method as recited in claim 1.

7.   A method for hashing a digital signal, the method comprising:

transforming a digital signal into a digital signal transform;

quantizing the digital signal transform;

geometric-region-growing the digital signal transform;

generating a recognition value of the digital signal.

8.   A method as recited in claim 7 further comprising:

pseudorandomly segmenting the digital signal into one or more segments;

for one or more of the segments, repeating the transforming, the quantizing, and the geometric-region-growing, wherein these repeated tasks are performed on a segment rather than the entire signal;

combining one or more of the segments.

9.   A method as recited in claim 7, wherein the transforming comprises a discrete wavelet transformation of the digital signal.

10.   A method as recited in claim 7, wherein the transforming comprises finding the DC subband.

11.   A method as recited in claim 7, wherein the quantizing comprises a multi-level quantization of the digital signal transform.

12.   A method as recited in claim 7, wherein the recognition value is a hash value.

13.   A method as recited in claim 7, wherein the geometric-region-growing comprises iterative geometric conversion.

14.   A method as recited in claim 7, wherein the geometric-region-growing comprises self-correcting iterative filtering.

15.   A method as recited in claim 7, wherein the geometric-region-growing comprises accentuating geometrically strong components of the signal while de-emphasizing the geometrically weak components of the signal.

16.   A method as recited in claim 7, wherein the geometric-region-growing comprises order-statistics filtering, local smoothing, and quantizing.

17.   A method as recited in claim 16, wherein the local smoothing comprises multi-dimensional linear shift-invariant filtering.

18. A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 7.

19. A computer comprising one or more computer-readable media having computer-executable instructions that, when executed by the computer, perform the method as recited in claim 7.

20. A method for hashing a digital signal, the method comprising:

transforming a digital signal into a digital signal transform;

quantizing the digital signal transform;

self-correcting iterative filtering of the digital signal transform;

generating a recognition value of the digital signal.

21. A method as recited in claim 20 further comprising:

pseudorandomly segmenting the digital signal into one or more segments;

for one or more of the segments, repeating the transforming, the quantizing, and the self-correcting iterative filtering, wherein these repeated tasks are performed on a segment rather than the entire signal;

combining one or more of the segments.

22. A method as recited in claim 20, wherein the quantizing comprises a multi-level quantization of the digital signal transform.

23. A method as recited in claim 20, wherein the recognition value is a hash value.

24. A method as recited in claim 20, wherein the self-correcting iterative filtering comprises accentuating geometrically strong components of the signal while de-emphasizing the geometrically weak components of the signal.

25. A method as recited in claim 20, wherein the self-correcting iterative filtering comprises order-statistics filtering, local smoothing, and quantizing.

26. A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 20.

27. A computer comprising one or more computer-readable media having computer-executable instructions that, when executed by the computer, perform the method as recited in claim 20.

28. A method for hashing a digital signal, the method comprising:

pseudorandomly segmenting a digital signal into one or more segments;

for one or more of the segments:

transforming a segment into a segment transform;

quantizing the segment transform;

self-correcting iterative filtering of the segment transform;

combining one or more of the segments;

generating a recognition value of the digital signal.

29. A method as recited in claim 28, wherein the recognition value is a hash value.

30. A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 28.

31. A computer comprising one or more computer-readable media having computer-executable instructions that, when executed by the computer, perform the method as recited in claim 28.

32. A computer-implemented method facilitating similarity recognition of a digital signal, the method comprising:

obtaining a digital signal;

non-linear filtering of the signal to eliminate isolated significant components of the signal;

deriving a recognition value from the filtered signal, the recognition value being representative of the digital signal such that perceptually distinct digital signals result in recognition values that are approximately independent of one another and perceptually similar digital signals result in proximally similar recognition values.

33. A method as recited in claim 32, wherein isolated significant components of the signal are those that are geometrically weak.

34. A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 32.

35. A system for digital signal similarity recognition, the system comprising:

a transformer configured to transform a digital signal into a signal transform;

a quantizer configured to quantitize the signal transform;

a iterative geometric converter configured to convert the signal transform into a representation of the signal that emphasizes geometrically strong components of the signal while de-emphasizing geometrically weak components of the signal.

36. A system as recited in claim 35 further comprising:

a segmenter configured to pseudorandomly segment the digital signal into one or more segments;

a combiner configured to combine the output of the converter for one or more of the segments.

37.   A system for digital signal similarity recognition, the system comprising:

a segmenter configured to pseudorandomly segment the digital signal into one or more of the segments;

a transformer configured to transform a segment into a segment transform;

a quantizer configured to quantitize the segment transform ;

a iterative geometric converter configured to convert the segment transform into a representation of the segment that emphasizes geometrically strong components of the segment while de-emphasizing geometrically weak components of the segment;

a combiner configured to combine the output of the converter for one or more of the segments.

38.   A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method comprising:

obtaining a digital signal; and

deriving a recognition value representative of the digital signal such that perceptually distinct digital signals result in recognition values that are approximately independent of one another and perceptually similar digital signals result in proximally similar recognition values.

39. A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method comprising:

transforming a digital signal into a digital signal transform;

quantizing the digital signal transform;

self-correcting iterative filtering of the digital signal transform;

generating a recognition value of the digital signal.